LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) Electroporation device for the permeabilization of cells (C) contained in a substrate [[(12)]] comprising a signal generator ~~generating means~~ [[(3)]] configured for generating a stimulating signal (S(t)) applied by means of electrodes [[(6,7)]] to the substrate [[(12)]] wherein an electric field (E(t)) permeabilizing the cells membranes is induced; the device ~~being characterized by~~ comprising:

[[means]] an element configured for measuring, calculating and monitoring ~~(15,16,23)~~ the instantaneous value of the ~~ration~~ ratio (GT) of current (ie) flowing between said electrodes [[(6,7)]] and through the substrate [[(12)]] and the voltage (Vp) of the stimulating signal (S(t)) applied to the substrate [[(12)]] by means of said electrodes [[(6,7)]];

said device further comprising a controlling [[means]] ~~(100-170)~~ element configured for applying the stimulating signal in a controlled manner according to the waveform of only an initial portion of the curve C_{GT} representing the ratio (GT) in successive instants after the beginning of the application of the stimulating signal (S(t)).

2. (Currently Amended) Device as claimed in claim 1, wherein said controlling [[means]] ~~(100-170)~~ element comprise a timing ~~means~~ [[(110)]] element configured for applying said stimulating signal for a predetermined period of time Td and analysing the initial portion of the waveform of curve C_{GT} to detect a minimum value of the curve C_{GT} within the interval t=0 and t=Td.

3. (Currently Amended) Device as claimed in claim 1, wherein said controlling [[means]] ~~(100-170)~~ element is configured for calculating ~~calculate~~ the slope of the waveform of curve C_{GT} after [[that]] a minimum in curve C_{GT} has been reached.

4. (Currently Amended) Device as claimed in claim 1, claims, wherein said controlling [[means]] ~~(100-170)~~ element comprise a hazard detecting ~~means~~ [[(120)]] element configured for determining the instantaneous gradient (dG) of said ratio (GT) after a minimum has been reached

in said curve C_{GT}; said controlling [[means]] element further ~~comprise~~ comprises a first comparing ~~means~~ [[(130)]] element configured for comparing the calculated ~~instaneous~~ instantaneous gradient dG with at least a reference value (dG_{refl}) and selecting a correcting ~~means (140,145)~~ element for performing an urgent correction to the stimulating signal S(t) in order to avoid lesions, damages or irreversible alterations in said substrate [[(12)]].

5. (Currently Amended) Device as claimed in claim 4, wherein said correcting [[means]] ~~(140,145)~~ element is configured to ~~decreases~~ decrease the voltage of the stimulating signal S(t) in order to prevent deterioration in the cells (C).

6. (Currently Amended) Device as claimed in claim 1, wherein said controlling [[means]] ~~(100-170)~~ element ~~comprise~~ comprises a slope determining ~~means~~ [[(150)]] element configured to calculate ~~calculating~~ the average variation ΔG of said ratio (GT) in a time interval that is successive to the instant Tm wherein a minimum in the curve (C_{GT}) has been reached and that has a pre-determined time width; said controlling [[means]] element further comprising a second comparing ~~means~~ [[(160)]] element configured to compare ~~comparing~~ the calculated average variation ΔG of said ratio (GT) with a reference interval of ΔG values.

7. (Currently Amended) Device as claimed in claim 6, wherein said second comparing ~~means~~ [[(160)]] element performs the following functions: if the calculated average variation ΔG of said ratio (GT) falls within the reference interval ($0<\Delta G<\Delta G_{obb}$) a continuing ~~means~~ element [[(170)]] ~~are~~ is selected; if the calculated average variation ΔG of said ratio (GT) falls outside the reference interval and it is smaller than both limits delimiting the interval ($\Delta G<0<\Delta G_{obb}$) an adjusting element ~~means~~ [[(180)]] ~~are~~ is selected; and if the calculated average variation ΔG of said ratio (GT) falls outside the reference interval and it is greater than both limits delimiting the interval ($\Delta G>\Delta G_{obb}>0$) a correcting ~~means~~ [[(140)]] element [[are]] is selected.

8. (Currently Amended) Device as claimed in claim 7, wherein said adjusting [[means]] [[(180)]] element is configured to increase the voltage of the stimulating signal in order to increase the value of the electric field E(t) applied to the substrate [[(12)]]; said adjusting ~~means~~

[[(180)]] element subsequently selecting said ~~means~~ element for calculating and monitoring ~~(15,16,23)~~ the instantaneous value of the said ratio (GT) and said controlling [[means]] element.

9. (Currently Amended) Device as claimed in claim 7, wherein said continuing [[means]] element [[(170)]] is configured to increase the voltage of the stimulating signal to an objective voltage V_{opt} in order to increase the value of the electric field E(t) applied to the substrate [[(12)]] so that the value of said average variation ΔG tends to an expected value ΔG_{obb}.

10. (Currently Amended) Device as claimed in claim 1, wherein said controlling ~~means (100-170)~~ element is configured to detect ~~detects~~ [[(125)]] a minimum of said initial portion of said curve and determining [[(126)]] the time Tm at which the minimum is reached.

11. (Currently Amended) Device as claimed in claim 10, wherein third comparing ~~means (127) are~~ is provided to compare the detected Tm with threshold values Ttmin and Ttmax; said third comparing ~~means~~ [[(127)]] element is configured to perform ~~performing~~ the following operations: if the detected Tm occurs before Ttmin (Tm<Ttmin) then a correcting ~~means (140) are~~ is selected; if the detected Tm occurs after Ttmax (Tm>Ttmax), then an adjusting ~~means (180) are~~ is selected; and if the detected Tm occurs between Ttmin and Ttmax, then a ~~continuing means (170) are~~ is selected.

12. (Currently Amended) ~~Use of a device as described in claim 1, to extract.~~ A method for extracting molecules from [[the]] living cells comprised in [[the]] a substrate, comprising the step of using the device of claim 1 to generate a controlled stimulating signal applied to living cells by means of electrodes while extracting molecules from the living cells.

13. (Currently Amended) ~~Use of a device as described in claim 1, to introduce~~ A method for introducing molecules into living cells comprising the step of using the device of claim 1 to generate a controlled stimulating signal applied to living cells by means of electrodes while introducing said molecules into the living cells.

14. (Currently Amended) ~~Use of the device~~ The method for introducing molecules as claimed in claim 13, wherein said molecules comprise one of the following: a DNA or a RNA molecule containing regulatory sequences and sequence coding for therapeutic genes or genes of interest for biomedical or biotechnological purposes; an oligonucleotide, (ribo- or deoxyribo-nucleotide, single or double strand, including the SiRNA), whether natural (phosphodiesters) or modified (inside the backbone of the oligonucleotide, ~~such as~~ phosphosulfates, or at the extremities, by addition of groups to protect the oligonucleotides from digestion of nucleases; a protein or peptide, whether natural or genetically or chemically modified, extracted from natural sources or obtained by synthesis, or a molecule simulating the structure of a protein or peptide, whatever its structure; a cytotoxic agent, ~~in particular,~~ the antibiotic bleomycin or the cisplatinum; a penicillin; and other pharmacological agents.